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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/921,171	CHAN ET AL.
	Examiner	Art Unit
	Andrew C. Flanders	2615

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 27 February 2006.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-47,49 and 53-61 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-47,49 and 53-61 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 27 February 2006 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 2-5, 9, 10, 18, 19, 38, 53 – 56, 58 and 60 have been considered but are moot in view of the new ground(s) of rejection necessitated by Applicant's amendment.

Applicant's arguments filed 27 February 2006 have been fully considered but they are not persuasive.

Applicant alleges in regards to claim 1:

"Applicants respectfully assert that it is conceded in the present Office Action that the Birrell et al. reference does not disclose a second operating system, said second operating system being stored in BIOS and adapted to retrieve said play list and cause said drive to read at least one of said audio file of said play list, to cause said system CPU to decompress the compressed audio data of said file and provide decompressed audio data, and to cause said decompressed audio data to be stored in said memory."

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

The Birrell reference does not disclose a second operation system as alleged by Applicant. However, since the rejection is not based upon the Birrell reference alone, but an obvious combination of Birrell in view of Jacobs. In the combination of references, the Jacobs references teaches the second operation system stored in BIOS of a computer system as will be shown further below.

Applicant further alleges in regards to claim 1:

“Additionally, Jacobs et al. does not anticipate or render obvious a second operating system that causes the system CPU to decompress the compressed audio data of said file and provide decompressed audio data. As expressly disclosed in Jacobs's reference, Jacobs et al. only disclose a computer system which is capable of playing audio CDs in a CD-ROM drive independent of an operating system by using an embedded CD-ROM drive application or a CD-ROM driver controller (Col. 1, Lines 57-59). That is, the Jacobs reference discloses a CD-ROM application that acts independently of the system CPU, which is distinct from the embodiments of the present invention as recited in independent Claim 1. More specifically, referring to Col. 1, Lines 64-67 and Col. 2, Lines 1-5, which are extracted by Examiner, Jacobs et al. only disclose an audio CD mode switch to activate the computer system with an operation system or activate the CD-ROM drive application to play audio CDs independent of the operation system. The Examiner is respectfully directed to Col. 4, Line 36 - Col. 5, Line 27 of the Jacobs patent. It will be appreciated that the audio CD mode switch 56 is used to activate the computer system in a PC mode, or activate the computer system in an audio CD mode. In the PC mode, the operating system proceeds to access and execute the system BIOS. In the audio CD mode, operating system is not loaded (Co1 4, Line 67- Col 5, Line 1).”

Examiner respectfully disagrees. Applicant is correct in alleging that the operating system is not loaded in Jacob in the audio CD mode. However, this is the main operating system. As shown in the previous rejection, Jacobs discloses a second operating mode, which is executed by code stored in the BIOS. This stored program

code application allows the computer to play the audio CDs without booting. See Jacobs col. 1 lines 64 – 67 and col. 2 lines 1 – 5. Thus, since this program controls the operation of the CD drive for playback of the system, it can be generally considered an operating system. Thus, while the main operating system is not loaded, this secondary one is. Contrary to Applicant's allegations, this is not in direct contrast with the claimed invention of the present Application.

Applicant further alleges in regards to claim 1:

"Nowhere in the Jacobs's reference is a computer system having a second operating system to cause the system CPU to decompress the compressed audio data of the file and provide decompressed audio data. Furthermore, Jacobs did not disclose any play list comprising one or more of said audio files, or any play list which can be retrieved by the second operating system to cause the drive to read the audio file of the play list. In fact, Jacobs failed to disclose any second operating system, not to mention the fact that a second operating system stored in BIOS and adapted to cause the system CPU to decompress the compressed audio data of the file shown or suggested as is recited in Claim 1. Consequently, the embodiments of the Applicant's invention as are set forth in Claim 1 are neither anticipated nor rendered obvious by Jacobs et al."

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

The Jacobs reference does not disclose any play list comprising one or more of the audio files, or any play list which can be retrieved by the second operating system to

cause the drive to read the audio file of the play list. However, since the rejection is not based upon the Jacobs reference alone, but an obvious combination of Birrell in view of Jacobs. In the combination of references, the Birrell reference teaches of a play list, and in combination with the Jacobs reference, it can be retrieved by the second operating system (taught by Jacobs).

Applicant further alleges in regards to claim 1:

“Furthermore, Birrell does not disclose any second operation system. Nowhere in the Birrell’s (sic) reference is a computer system having a second operating system adapted to cause the system CPU to decompress the compressed audio data of the file. Birrell did not disclose any play list which can be retrieved by the second operating system to cause the drive to read the audio file of the play list. Consequently, the embodiments of the Applicant’s invention as are set forth in Claim 1 are neither anticipated nor rendered obvious by Birrell either alone or in combination with Jacobs.”

In response to applicant’s arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

The Birrell reference does not disclose a second operation system as alleged by Applicant. However, since the rejection is not based upon the Birrell reference alone, but an obvious combination of Birrell in view of Jacobs. In the combination of references, the Jacobs references teaches the second operation system stored in BIOS of a computer system as is shown above.

Applicant states in regards to claim 7:

"Nowhere in the Jacobs's reference or in the Birrell's reference is a computer system having a play list software program executable under the first operating system to generate a play list, which is retrieved by the second operating system. The second operating system will play the audio file according to the play list. Neither Jacobs nor Birrell discloses the play list created under the first operation system for playing the audio file under the second operating system. Consequently, Claim 7 overcome the rejection under 35 U.S.C. 103(a)."

Examiner respectfully disagrees. In addition to what is stated above, these arguments are not persuasive. The combination of Birrell in view of Jacob's does in fact disclose a computer system having a play list software program executable under the first operating system to generate a play list. Birrell discloses various control programs (i.e. a first operating system) for controlling his system (what can generally be considered a computer in its broadest sense). Birrell also discloses storing a table of contents and play state information in RAM. The control programs can generally be defined as a first operating system, as is shown in the previous rejection. The play list, as disclosed by Birrell, permits selection and storage of a play list comprising one or more of said audio files. Birrell even states that the play list is a list of audio tracks to be played (col. 3 lines 49 – 50). Thus, at this point it is shown that Birrell discloses a play list software program (element 190; col. 3 lines 49 – 50), said play list software program being adapted to permit selection and storage of a play list comprising one or more of said audio files (i.e. storing a table of contents and play state information in RAM; the play state includes a play list which is a list of audio tracks to be played; col. 3 lines 39 –

50). Further, this play list is executed using one of the control programs listed in col. 5 of Birrell, thus reading on upon the limitation in question of a play list software program executable under said first operating system. As such, the argument is not persuasive and the rejection stands.

Applicants arguments regarding claim 8 are not persuasive for the same reasons stated above regarding claims 1 and 7.

Applicants arguments regarding claims 11 – 17 are not persuasive for the same reasons stated above regarding claim 1.

Applicant alleges in regards to claim 20:

"Birrell et al. do not disclose any audio controller adapted to cause the drive to read the compressed audio data and the CPU to decompress the compressed audio data. Referring to Col. 5, Line 9-14 in the Birrell's reference, the control logic of the system is implemented primarily in the form of control program that is executed by the system's data processor and may be stored in ROM. Applicants, however, respectfully submit that the ROM with the control programs does not anticipate or render obvious an audio controller to cause the drive to read the compressed audio data and to cause the system CPU to decompress the compressed audio data. The claimed invention must be considered as a whole. The control program may be stored in ROM, but is executed by the processor. In other words, the play procedure or the decompression procedure is caused by the processor but not the ROM with the control programs. By contrast, the audio controller of the claimed invention is able to cause the system CPU to decompress the compressed audio data. Applicants respectfully submit that Birrell et al. failed to disclose the claim limitations. Consequently, the embodiments of the Applicant's invention as are set forth in Claim 20 are neither anticipated nor rendered obvious by Birrell et al."

Examiner respectfully disagrees with this allegation. The control logic stored in the ROM (when taken in combination with the ROM) disclose an audio controller adapted to cause the drive to read the compressed audio data and the CPU to decompress the compressed audio data. The programs in the ROM cause this to occur and thus can be considered in its broadest sense an audio controller. As shown in the previous rejection, the control programs include a decompression procedure and play produce, the play procedure determine when to copy data from the disk (office action page 14). Thus, the ROM, when taken in combination with the programs its stores does disclose the audio controller of the claimed invention is able to cause the system CPU to decompress the compressed audio data.

Applicant also states in regards to claim 20:

Furthermore, Applicants hereby traverse the finding by the Examiner as "official notice" that it would have been obvious to store the decompressed data prior to the A/D conversion. It is conceded that the Birrell et al. reference discloses storing the decompressed data in memory. Applicants respectfully assert that the taking of "official notice" is inappropriate since it is not suggested or rendered obvious by the Birrell et al. reference for the use of a second operating system for accessing compressed data, and decompressing the data. Applicants hereby respectfully demands the Examiner to produce authority for taking "official notice."

In response to Applicant's traversal of the Official notice, Examiner provides evidence in Wachi et al. (U.S. RE37,367 E). Wachi teaches: Before the D/A converter 23, an FIFO data buffer (not shown) is normally provided; col. 7 lines 45 – 50; and the data buffer is provided before the D/A converter 23 in order to temporarily store the

generated wave data of the sound; col. 12 lines 60 – 65. Wachi discloses that this is to remove jitter (i.e. gaps in playback) in some configurations; col. 12 lines 55 – 60. As Wachi discloses what was stated in the official notice of the previous rejection, Applicant's traversal cannot be upheld and the rejection stands.

Applicants arguments regarding claims 37 and 57 are not persuasive for the same reasons stated above regarding claim 20.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 38, 53 and 56 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 38 claims storing said decompressed audio data for later playback using a mini operating system. As far as Examiner can tell from the specification, the decompressed data is placed in a FIFO buffer and then sequentially feeds the data to the codec and then to a D/A converter to

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be played back (pages 9 and 10, section 4 of the operation). These details describe a real time playback and do not explicitly state information on how a later playback can be achieved. As such, a new matter situation is present.

Drawings

New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because the legends are generally unreadable. Applicant is advised to employ the services of a competent patent draftsperson outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 1 – 19, 31 – 32, 38 – 46, 47, 53, 54, 55, 56 and 58 – 61 are rejected 46
under 35 U.S.C. 103(a) as being unpatentable over Birrell (U.S. Patent 6,332,175) in view of Jacobs (U.S. Patent 6,006,285).

Regarding **Claims 1 and 7**, Birrell discloses:

A computer system adapted to play audio files, said computer system comprising:

a system CPU; memory and at least one drive comprising compressed audio data, said compressed audio data residing in one or more audio files (i.e. a CPU, a RAM, and a Hard disk that stores compressed audio files; fig.1 elements 102, 108 and 104)

a play list software program executable under said first operating system, said playlist software program being adapted to permit selection and storage of a play list comprising one or more of said audio files(i.e. storing a table of contents and play state information in RAM; col. 5 lines 39 – 50;

a first operating system adapted to control at least said system CPU and said memory (i.e. control programs for the system; col. 4 lines 10 – 12)

cause said drive to read at least one audio file of said play list (i.e. copying a table of contents from the hard drive (i.e. retrieving said play list), and additional data is copied from non-volatile storage medium into volatile storage medium; col. 3 lines 51 – 52)

cause said system CPU to decompress the compressed audio data of said file and provide decompressed audio data (i.e. processing unit 102 to decompress a portion of the audio data stored in RAM (col. 4 lines 30 – 33)

Birrell does not discloses a second operating system, said second operating system being stored in BIOS and adapted to retrieve said play list and cause said drive to read at least one said audio file of said play list, to cause said system CPU to decompress the compressed audio data of said file and provide decompressed audio data, and to cause said decompressed audio data to be stored in said memory.

Jacobs discloses:

a second operating system, said second operating system being stored in BIOS (i.e. a second operating mode, an audio CD mode switch that can activate a non-volatile memory region which stores system BIOS code for loading an operating system and a CD-ROM drive application associated with the operating system for audio playback (col. 1 lines 64 – 67 and col. 2 lines 1 – 5)

It would have been obvious to one of ordinary skill in the art to modify Jacobs in order to play compressed music in the manner disclosed by Birrell in place of the CD drive. Birrell discloses that one of ordinary skill in the art will recognize that any suitable non-volatile storage medium (CD) could be used in place of the hard disk used in the preferred embodiment (col. 4 lines 45 – 48).

It would have been obvious to substitute the hard disk playback of compressed music for the audio CD playback as well. One would have been motivated to do so to

avoid the lengthy duration of the booting process for an operating system (Jacobs col. 1 lines 34 – 36).

Moreover, neither Birrell nor Jacobs disclose storing the decompressed data in said memory. However, Examiner takes official notice that it would have been obvious to one of ordinary skill in the art at the time of the invention to store the decompressed data prior to the A/D conversion. One would have been motivated to do so to buffer the data in order to provide a smooth playback and avoid unnecessary gaps within playback.

Claims 2 and 8 recite a set of limitations broader than those claimed in claim 1 and thus the rejection of claim 1 reads upon these claims.

Regarding **Claims 3, 4 and 10**, in addition to the elements stated above regarding claim 1, the combination of Birrell in view of Jacobs further discloses: a mini operating system (i.e. Jacob's second OS) running instead of a first operating system (i.e. Birrell's control programs) controlling said computer system, wherein said mini-operating system operates only to play said audio files, and wherein said mini operating system stored in said BIOS(i.e. a second operating mode, an audio CD mode switch that can activate a non-volatile memory region which stores system BIOS code for loading an operating system and a CD-ROM drive application associated with the operating system for audio playback (col. 1 lines 64 – 67 and col. 2 lines 1 – 5). The second operating system in Jacobs is considered a mini OS as it only loads the

software necessary to operate the CD drive, thus it contains less objects and software than the main OS making it smaller and thus mini.

 said mini operating system being adapted to cause said system CPU to decompress said compressed audio data(i.e. processing unit 102 to decompress a portion of the audio data stored in RAM (col. 4 lines 30 – 33; applying this with the Jacob's reference causes the mini Os to do this)

 Moreover, neither Birrell nor Jacobs disclose storing the decompressed data in said memory. However, Examiner takes official notice that it would have been obvious to one of ordinary skill in the art at the time of the invention to store the decompressed data prior to the A/D conversion. One would have been motivated to do so to buffer the data in order to provide a smooth playback and avoid unnecessary gaps within playback.

 Regarding **Claims 5 and 9**, in addition to the elements stated above regarding claims 1 and 3, Birrell further discloses:

 an audio controller (i.e. a disk controller that controls audio file transfers from the hard disk (fig 1 element 106)

 said operating system controlling said audio controller (i.e. and control programs for the system (col. 4 lines 10 – 12)

Regarding **Claim 6**, in addition to the elements stated above regarding claim 1, Birrell further discloses:

an audio controller (i.e. a disk controller that controls audio file transfers from the hard disk (fig 1 element 106)

said operating system controlling said audio controller (i.e. and control programs for the system (col. 4 lines 10 – 12)

Birrell does not disclose using the second operating system to control said audio controller.

Jacobs discloses a second operating mode, an audio CD mode switch that can activate a non-volatile memory region which stores system BIOS code for loading an operating system and a CD-ROM drive application associated with the operating system for audio playback (col. 1 lines 64 – 67 and col. 2 lines 1 – 5). Motivation to combine these elements is given above regarding claim 1.

Regarding **Claims 11 and 12**, in addition to the elements stated above regarding claim 1, Birrell further discloses:

booting a first operating system, creating and storing a play list comprising a list of compressed audio files residing on one or more drives of a computer system having at least a drive, a CPU and a memory and terminating said first operating system (i.e. play-mode management logic periodically powers on the disk storage unit, copies compressed audio data from the disk storage unit into the memory buffer, and powers

off the storage unit after completing the copying operation (col. 2 lines 65 – 67 and col. 3 lines 1 – 2)

reading said play list (i.e. copying a table of contents from the hard drive (col. 5 lines 42 – 45)

reading said compressed audio files from said drive based on said play list (i.e. and additional data is copied from non-volatile storage medium into volatile storage medium (col. 3 lines 51 – 52)

providing said compressed audio data to said CPU for decompressing the data of said compressed audio file into decompressed audio data (i.e. processing unit 102 to decompress a portion of the audio data stored in RAM (col. 4 lines 30 – 33)

playing decompressed audio data (i.e. once the audio data has been decompressed it is played back (col. 4 lines 30 – 37).

Birrell does not disclose booting a second operating system upon activation by a switch or storing said decompressed audio data in said memory.

Applying Jacobs to the Birrell reference discloses:

booting a second operating system upon activation by a switch, wherein said second operating system running instead of said first operating system to operate only to play said compressed audio files(i.e. a second operating mode, an audio CD mode switch that can activate a non-volatile memory region which stores system BIOS code for loading an operating system and a CD-ROM drive application associated with the operating system for audio playback (col. 1 lines 64 – 67 and col. 2 lines 1 – 5) when the CD mode switch is in an on state (col. 2 lines 6 – 8); and instead of playing the CDs

in the Jacobs reference, the compressed audio files are played as in the Birrell reference)

and wherein said second operating system store din BIOS (i.e. an audio CD mode switch that can activate a non-volatile memory region which stores system BIOS code for loading an operating system (col. 1 lines 64 – 67 and col. 2 lines 1 – 5),

said second operating system being adapted to cause said system CPU to decompress said compressed audio data i.e. processing unit 102 to decompress a portion of the audio data stored in RAM (col. 4 lines 30 – 33; applying this with the Jacob's reference causes the second Os to do this)

It would have been obvious to one of ordinary skill in the art to modify Jacobs in order to play compressed music in the manner disclosed by Birrell in place of the audio CD mode. Birrell discloses that one of ordinary skill in the art will recognize that any suitable non-volatile storage medium (CD) could be used in place of the hard disk used in the preferred embodiment (col. 4 lines 45 – 48).

It would have been obvious to substitute the hard disk playback of compressed music for the audio CD playback as well. One would have been motivated to do so to avoid the lengthy duration of the booting process for an operating system (Jacobs col. 1 lines 34 – 36).

Moreover, neither Birrell nor Jacobs disclose storing the decompressed data in said memory. However, Examiner takes official notice that it would have been obvious to one of ordinary skill in the art at the time of the invention to store the decompressed data prior to the A/D conversion. One would have been motivated to do so to buffer the

data in order to provide a smooth playback and avoid unnecessary gaps within playback.

Regarding **Claim 13**, in addition to the elements stated above regarding claim 1, Jacobs further discloses:

a first switch, the activation of said first switch causing said first operating system to boot (i.e. the main power switch of the computer boots it in normal mode (col. 2 lines 6 – 8)

a second switch, the activation of said second switch causing said second operating system to boot (i.e. and an audio CD mode switch (col. 2 lines 6 – 8)

and a second operating system operating independently of said system CPU (i.e. when the computer system S enters an audio CD mode, only the CD-ROM drive and CD-ROM drive controller are powered col. 5 lines 15 - 20; adding this to Birrell will allow this to operate with the hard drive to decompress the stored music).

Motivation to combine Jacobs and Birrell is given above regarding claim 1.

Regarding **Claim 14**, in addition to the elements stated above regarding claim 1, Jacobs further discloses:

a switch the activation of said switch causing said second operating system to boot (i.e. a second operating mode, an audio CD mode switch that can activate a non-volatile memory region which stores system BIOS code for loading an operating system and a CD-ROM drive application associated with the operating system for audio

playback (col. 1 lines 64 – 67 and col. 2 lines 1 – 5) when the CD mode switch is in an on state (col. 2 lines 6 – 8)

and a second operating system operating independently of said system CPU (i.e. when the computer system S enters an audio CD mode, only the CD-ROM drive and CD-ROM drive controller are powered col. 5 lines 15 - 20; adding this to Birrell will allow this to operate with the hard drive to decompress the stored music).

Motivation to combine Jacobs and Birrell is given above regarding claim 1.

Claim 15 recites a set of limitations broader than those claimed in claim 14 and thus the rejection of claim 14 reads upon this claim.

Regarding **Claims 16 and 17**, in addition to the elements stated above regarding claim 6, Jacobs further discloses:

a switch, the activation of said switch causing said second operating system to boot (i.e. an audio CD mode switch (col. 2 lines 6 – 8)

and a second operating system operating independently of said system CPU (i.e. when the computer system S enters an audio CD mode, only the CD-ROM drive and CD-ROM drive controller are powered col. 5 lines 15 - 20; adding this to Birrell will allow this to operate with the hard drive to decompress the stored music).

Claims 18 and 19 are met by the limitations set forth in claims 3, 16 and 17.

Regarding **Claims 31 and 47**, in addition to the elements stated in the action regarding claims 20 and 38, Birrell further discloses:

 said audio controller being adapted to cause said drive to read said compressed audio data, to cause said system CPU to decompress said compressed audio data, thereby providing decompressed audio data (i.e. the control programs include a decompression procedure (col. 5 lines 22 – 23), play procedure (col. 5 lines 20 – 21), said play procedure determines when to copy data from the disk (col. 6 lines 14 – 16)

 Birrell does not disclose storing the decompressed data in said memory.

However, Examiner takes official notice that it would have been obvious to one of ordinary skill in the art at the time of the invention to store the decompressed data prior to the A/D conversion. One would have been motivated to do so to buffer the data in order to provide a smooth playback and avoid unnecessary gaps within playback.

 Birrell does not disclose not doing these operations unless said computer system is off, in hibernate mode, in suspend to HDD mode, or in one of the power states S4 or S5.

 Jacobs discloses:

 not doing these operations unless said computer system is off, in hibernate mode, in suspend to HDD mode, or in one of the power states S4 or S5 (i.e. the audio CD mode is enabled within the main power switch of the computer is in an off state (col. 2 lines 6 – 8)

 It would have been obvious to one of ordinary skill in the art to modify Jacobs in order to play compressed music in the manner disclosed by Birrell in place of the audio

CD mode. Birrell discloses that one of ordinary skill in the art will recognize that any suitable non-volatile storage medium (CD) could be used in place of the hard disk used in the preferred embodiment (col. 4 lines 45 – 48).

It would have been obvious to substitute the hard disk playback of compressed music for the audio CD playback as well. One would have been motivated to do so to avoid the lengthy duration of the booting process for an operating system (Jacobs col. 1 lines 34 – 36).

Regarding **Claims 32**, in addition to the elements stated in the action regarding claim 20, Birrell further discloses:

 said audio controller being adapted to cause said drive to read said compressed audio data, to cause said system CPU to decompress said compressed audio data, thereby providing decompressed audio data (i.e. the control programs include a decompression procedure (col. 5 lines 22 – 23), play procedure (col. 5 lines 20 – 21), said play procedure determines when to copy data from the disk (col. 6 lines 14 – 16) (i.e.).

 Birrell does not disclose storing the decompressed data in said memory. However, Examiner takes official notice that it would have been obvious to one of ordinary skill in the art at the time of the invention to store the decompressed data prior to the A/D conversion. One would have been motivated to do so to buffer the data in order to provide a smooth playback and avoid unnecessary gaps within playback.

Birrell does not disclose not doing these operations when said computer system is on, in sleep mode, in suspend to RAM mode, or in one of the power states S0 or S3.

Jacobs discloses:

not doing these operations when said computer system is on, in sleep mode, in suspend to RAM mode, or in one of the power states S0 –S3 (i.e. the audio CD mode is only enabled when the power of the computer is in the off stated (col. 2 lines 6 –8):

Therefore, when the computer is in the on state, it cannot operate in the audio CD mode

It would have been obvious to one of ordinary skill in the art to modify Jacobs in order to play compressed music in the manner disclosed by Birrell in place of the audio CD mode. Birrell discloses that one of ordinary skill in the art will recognize that any suitable non-volatile storage medium (CD) could be used in place of the hard disk used in the preferred embodiment (col. 4 lines 45 – 48).

It would have been obvious to substitute the hard disk playback of compressed music for the audio CD playback as well. One would have been motivated to do so to avoid the lengthy duration of the booting process for an operating system (Jacobs col. 1 lines 34 – 36).

Regarding **Claim 54**, Birrell discloses:

A method of playing audio files on a computer system, said method comprising:
when said computer system is on, in sleep mode, in suspend to RAM mode, or in one of power states S0 or S3, creating and storing a play list comprising a list of compressed audio files residing on one or more drives of a computer system having at

least a drive, a CPU, and a memory (i.e. storing a table of contents and play state information in RAM (col. 5 lines 39 – 50), a CPU, RAM and disk drive with compressed audio files (Fig. 1 elements 102, 104 and 108) user selections are added to a play list (col. 5 lines 1 – 2)

playing the compressed audio files of said play list (i.e. and once the audio data has been decompressed it is played back (col. 4 lines 30 – 37)

Birrell does not disclose playing the compressed audio files of said play list when said computer system is off, in hibernate mode, in suspend to HDD mode, or in one of the power states S4 or S5 or a mini operating system operating independently of a first operating system controlling said computer system, wherein said mini-operating system operates only to play said compressed audio files,

Jacobs discloses:

not doing these operations unless said computer system is off, in hibernate mode, in suspend to HDD mode, or in one of the power states S4 or S5 (i.e. the audio CD mode is enabled within the main power switch of the computer is in an off state (col. 2 lines 6 – 8).

a mini operating system (i.e. Jacob's second OS) operating independently of a first operating system (i.e. Birrell's control programs) controlling said computer system, wherein said mini-operating system operates only to play said audio files, (i.e. a second operating mode, an audio CD mode switch that can activate a non-volatile memory region which stores system BIOS code for loading an operating system and a CD-ROM drive application associated with the operating system for audio playback (col. 1 lines

64 – 67 and col. 2 lines 1 – 5). The second operating system in Jacobs is considered a mini OS as it only loads the software necessary to operate the CD drive, thus it contains less objects and software than the main OS making it smaller and thus mini.

It would have been obvious to one of ordinary skill in the art to modify Jacobs in order to play compressed music in the manner disclosed by Birrell in place of the audio CD mode. Birrell discloses that one of ordinary skill in the art will recognize that any suitable non-volatile storage medium (CD) could be used in place of the hard disk used in the preferred embodiment (col. 4 lines 45 – 48).

It would have been obvious to substitute the hard disk playback of compressed music for the audio CD playback as well. One would have been motivated to do so to avoid the lengthy duration of the booting process for an operating system (Jacobs col. 1 lines 34 – 36).

Regarding **Claim 55**, Birrell discloses:

A method of playing audio files on a computer system, said method comprising:
when said computer system is on, in sleep mode, in suspend to RAM mode, or in one of power states S0 or S3, creating and storing a play list comprising a list of compressed audio files residing on one or more drives of a computer system having at least a drive, a CPU, and a memory (i.e. storing a table of contents and play state information in RAM (col. 5 lines 39 – 50), a CPU, RAM and disk drive with compressed audio files (Fig. 1 elements 102, 104 and 108) user selections are added to a play list (col. 5 lines 1 – 2)

wherein said list of compressed audio files is stored for later playback (i.e. col. 5 lines 49 – 50)

Birrell also discloses, but does not disclose while doing when said computer system is off, in hibernate mode, in suspend to HDD mode, or in one of power states S4 or S5:

reading said play list and reading said compressed audio files from said hard drive based on said play list (i.e. said play procedure determines when to copy data from the disk (col. 6 lines 14 – 16)

providing said compressed audio data to said CPU for decompressing the data of said compressed audio file into decompressed audio data (i.e. processing unit 102 to decompress a portion of the audio data stored in RAM (col. 4 lines 30 – 33)

retrieving said decompressed audio data for playing (i.e. and once the audio data has been decompressed it is played back (col. 4 lines 30 – 37)

Jacobs discloses:

not doing these operations unless said computer system is off, in hibernate mode, in suspend to HDD mode, or in one of the power states S4 or S5 (i.e. the audio CD mode is enabled within the main power switch of the computer is in an off state (col. 2 lines 6 – 8).

It would have been obvious to one of ordinary skill in the art to modify Jacobs in order to play compressed music in the manner disclosed by Birrell in place of the audio CD mode. Birrell discloses that one of ordinary skill in the art will recognize that any

suitable non-volatile storage medium (CD) could be used in place of the hard disk used in the preferred embodiment (col. 4 lines 45 – 48).

It would have been obvious to substitute the hard disk playback of compressed music for the audio CD playback as well. One would have been motivated to do so to avoid the lengthy duration of the booting process for an operating system (Jacobs col. 1 lines 34 – 36).

Moreover, neither Birrell nor Jacobs disclose storing the decompressed data in said memory. However, Examiner takes official notice that it would have been obvious to one of ordinary skill in the art at the time of the invention to store the decompressed data prior to the A/D conversion. One would have been motivated to do so to buffer the data in order to provide a smooth playback and avoid unnecessary gaps within playback.

Applying Jacobs to Birrell reads upon the limitations of storing said list using a mini-operating system operating independently of a first operating system (i.e. using Jacob's second operating system)

a mini operating system (i.e. Jacob's second OS) operating independently of a first operating system (i.e. Birrell's control programs) controlling said computer system, wherein said mini-operating system operates only to play said compressed audio files, (i.e. a second operating mode, an audio CD mode switch that can activate a non-volatile memory region which stores system BIOS code for loading an operating system and a CD-ROM drive application associated with the operating system for audio playback (col. 1 lines 64 – 67 and col. 2 lines 1 – 5). The second operating system in

Jacobs is considered a mini OS as it only loads the software necessary to operate the CD drive, thus it contains less objects and software than the main OS making it smaller and thus mini.

Regarding **Claim 38**, Birrell discloses:

A method of playing audio files on a computer system, said method comprising:
reading compressed audio data from the drive of a computer system having at least a drive, a CPU and a memory (i.e. a computer system with a CPU, RAM and a drive with compressed audio data (Fig. 1 elements 102, 104, and 108) additional data is copied from non-volatile storage medium into volatile storage medium (col. 3 lines 51 – 52)

providing said compressed audio data to said CPU for decompressing said compressed audio data, thereby providing decompressed audio data (i.e. processing unit 102 to decompress a portion of the audio data stored in RAM (col. 4 lines 30 – 33)

Birrell does not disclose storing the decompressed data in said memory for later playback using a mini-operating system operating independently of a first operating system controlling said computer system, wherein said mini-operating system is operable only to play said compressed audio data.

However, Examiner takes official notice that it would have been obvious to one of ordinary skill in the art at the time of the invention to store the decompressed data prior

to the A/D conversion. One would have been motivated to do so to buffer the data in order to provide a smooth playback and avoid unnecessary gaps within playback.

Birrell further discloses storing data for playback at a later time (col. 7 lines 14 – 45). Applying this to the official notice reads upon the limitation of storing the decompressed data in said memory for later playback.

The modification of Birrell further fails to disclose using a mini-operating system operating independently of a first operating system controlling said computer system, wherein said mini-operating system is operable only to play said compressed audio data.

Jacobs discloses

a mini operating system (i.e. Jacob's second OS) operating independently of a first operating system (i.e. Birrell's control programs) controlling said computer system, wherein said mini-operating system operates only to play said compressed audio files, (i.e. a second operating mode, an audio CD mode switch that can activate a non-volatile memory region which stores system BIOS code for loading an operating system and a CD-ROM drive application associated with the operating system for audio playback (col. 1 lines 64 – 67 and col. 2 lines 1 – 5). The second operating system in Jacobs is considered a mini OS as it only loads the software necessary to operate the CD drive, thus it contains less objects and software than the main OS making it smaller and thus mini.

It would have been obvious to one of ordinary skill in the art to modify Jacobs in order to play compressed music in the manner disclosed by Birrell in place of

the audio CD mode. Birrell discloses that one of ordinary skill in the art will recognize that any suitable non-volatile storage medium (CD) could be used in place of the hard disk used in the preferred embodiment (col. 4 lines 45 – 48).

It would have been obvious to substitute the hard disk playback of compressed music for the audio CD playback as well. One would have been motivated to do so to avoid the lengthy duration of the booting process for an operating system (Jacobs col. 1 lines 34 – 36).

Regarding **Claim 39**, in addition to the elements stated regarding claim 38, Birrell further discloses:

wherein said audio controller is further adapted to place said CPU in standby state when said system CPU is not decompressing said compressed audio data (i.e. the control programs include a power down procedure (col. 5 lines 24 – 25) and in a preferred embodiment, one predefined power down condition is data is not being played (col. 7 lines 22 – 24)

Regarding **Claim 40**, in addition to the elements stated regarding claim 38, Birrell further discloses:

wherein said audio controller is further adapted to cause said decompressed audio data to be retrieved for playing (i.e. the control programs include a play procedure (col. 5 lines 20 – 21) and once the audio data has been decompressed it is played back (col. 4 lines 30 – 37)

Regarding **Claim 41**, in addition to the elements stated regarding claim 38, Birrell further discloses:

wherein said drive is a hard disk, removable disk, floppy disk, magnetic storage medium, optical storage medium, or IDE device (i.e. a main non-volatile storage unit, preferably a hard disk (col. 4 lines 6 – 7)

Regarding **Claim 42**, in addition to the elements stated regarding claim 38, Birrell further discloses:

wherein said compressed audio data is in MP3, WMA, AAC, or other secured compressed audio format (i.e. a compression format such as MP3 (col. 1 line 57 – 58)

Regarding **Claim 43**, in addition to the elements stated regarding claim 38, Birrell further discloses:

further comprising an LCD interface for generating signals to an LCD display for displaying song name, file/directory name and/or timing data (i.e. a user interface (fig. 1 element 116) that includes an LCD display (fig. 1 element 118) and the table of contents 152 can be viewed on the display 118, and the user can select CDs and/or individual tracks to be played (col. 4 lines 66 – 67 and col. 5 line 1)

Regarding **Claim 44**, in addition to the elements stated regarding claim 38, Birrell discloses:

further comprising a plurality of function keys and a function key interface operable with said plurality of function keys, said function keys generating user commands to said audio controller through said function key interface (i.e. a user interface that includes one or more buttons or other user input devices (col. 4 lines 14 – 15) and playing back audio due to a user input (col. 7 lines 60 – 65)

Regarding **Claim 53**, Birrell discloses:

A method of playing audio files on a computer system, said method comprising: creating and storing a play list comprising a list of compressed audio files residing on one or more drives of a computer system having at least a drive, a CPU, and a memory (i.e. storing a table of contents and play state information in RAM (col. 5 lines 39 – 50), a CPU, RAM and disk drive with compressed audio files (Fig. 1 elements 102, 104 and 108) user selections are added to a play list (col. 5 lines 1 – 2)

reading said play list; reading said compressed audio files from said drive based on said play list (i.e. said play procedure determines when to copy data from the disk (col. 6 lines 14 – 16)

providing compressed audio data to said CPU for decompressing the data of said compressed audio file into decompressed audio data (i.e. processing unit 102 to decompress a portion of the audio data stored in RAM (col. 4 lines 30 – 33)

retrieving decompressed audio data for playing (i.e. and once the audio data has been decompressed it is played back (col. 4 lines 30 – 37)

Birrell does not disclose storing the decompressed data in said memory for later playback using a mini-operating system operating independently of a first operating system controlling said computer system, wherein said mini-operating system is operable only to play said compressed audio data or using said mini-operating system for retrieving.

However, Examiner takes official notice that it would have been obvious to one of ordinary skill in the art at the time of the invention to store the decompressed data prior to the A/D conversion. One would have been motivated to do so to buffer the data in order to provide a smooth playback and avoid unnecessary gaps within playback.

Birrell further discloses storing data for playback at a later time (col. 7 lines 14 – 45). Applying this to the official notice reads upon the limitation of storing the decompressed data in said memory for later playback.

The modification of Birrell further fails to disclose using a mini-operating system operating independently of a first operating system controlling said computer system, wherein said mini-operating system is operable only to play said compressed audio data and using said mini-operating system for retrieving.

Jacobs discloses

a mini operating system (i.e. Jacob's second OS) operating independently of a first operating system (i.e. Birrell's control programs) controlling said computer system, wherein said mini-operating system operates only to play said compressed audio files,

(i.e. a second operating mode, an audio CD mode switch that can activate a non-volatile memory region which stores system BIOS code for loading an operating system and a CD-ROM drive application associated with the operating system for audio playback (col. 1 lines 64 – 67 and col. 2 lines 1 – 5). The second operating system in Jacobs is considered a mini OS as it only loads the software necessary to operate the CD drive, thus it contains less objects and software than the main OS making it smaller and thus mini. Applying these teachings to the retrieval of Birrell discloses using said mini-operating system for retrieving.

It would have been obvious to one of ordinary skill in the art to modify Jacobs in order to play compressed music in the manner disclosed by Birrell in place of the audio CD mode. Birrell discloses that one of ordinary skill in the art will recognize that any suitable non-volatile storage medium (CD) could be used in place of the hard disk used in the preferred embodiment (col. 4 lines 45 – 48).

It would have been obvious to substitute the hard disk playback of compressed music for the audio CD playback as well. One would have been motivated to do so to avoid the lengthy duration of the booting process for an operating system (Jacobs col. 1 lines 34 – 36).

Regarding **Claim 56**, Birrell discloses:

A method of playing audio files on a computer system, said method comprising:

. a system CPU; memory; and at least one drive comprising compressed audio data, said compressed audio data residing in one or more audio files (i.e. a CPU, a RAM, a disk with compressed audio files (fig. 1 elements 102, 108 and 104)

a play list software program for selecting a play list comprising one or more of said audio files (i.e. storing a table of contents and play state information in RAM (col. 5 lines 39 – 50)

an audio controller coupled to said system CPU, memory and drive (i.e. a ROM that stores control programs);

said audio controller being adapted to cause said drive to read said compressed audio data, to cause said system CPU to decompress said compressed audio data, thereby providing decompressed audio data (i.e. the control programs include a decompression procedure (col. 5 lines 22 – 23), play procedure (col. 5 lines 20 – 21), said play procedure determines when to copy data from the disk (col. 6 lines 14 – 16)

playing said decompressed audio data (i.e. and once the audio data has been decompressed it is played back (col. 4 lines 30 – 37)

Birrell does not disclose storing the decompressed data in said memory for later playback using a mini operating system operating independently of a first operating system for controlling said computer system, wherein said mini-operating system is operable only to play said compressed audio data and using said mini-operating system for playing said decompressed audio data from said memory.

However, Examiner takes official notice that it would have been obvious to one of ordinary skill in the art at the time of the invention to store the decompressed data prior

to the A/D conversion. One would have been motivated to do so to buffer the data in order to provide a smooth playback and avoid unnecessary gaps within playback.

Jacobs discloses

a mini operating system (i.e. Jacob's second OS) operating independently of a first operating system (i.e. Birrell's control programs) controlling said computer system, wherein said mini-operating system operates only to play said compressed audio files, (i.e. a second operating mode, an audio CD mode switch that can activate a non-volatile memory region which stores system BIOS code for loading an operating system and a CD-ROM drive application associated with the operating system for audio playback (col. 1 lines 64 – 67 and col. 2 lines 1 – 5). The second operating system in Jacobs is considered a mini OS as it only loads the software necessary to operate the CD drive, thus it contains less objects and software than the main OS making it smaller and thus mini.

Using Jacobs operating system to play the music reads upon the limitation of using said mini-operating system for playing said decompressed audio data from said memory.

It would have been obvious to one of ordinary skill in the art to modify Jacobs in order to play compressed music in the manner disclosed by Birrell in place of the audio CD mode. Birrell discloses that one of ordinary skill in the art will recognize that any suitable non-volatile storage medium (CD) could be used in place of the hard disk used in the preferred embodiment (col. 4 lines 45 – 48).

It would have been obvious to substitute the hard disk playback of compressed music for the audio CD playback as well. One would have been motivated to do so to avoid the lengthy duration of the booting process for an operating system (Jacobs col. 1 lines 34 – 36).

Regarding **Claims 58 and 60**, Birrell discloses:

A computer system adapted to play audio files, said computer system comprising:

a memory, a system CPU and at least drive comprising compressed audio data residing in one or more audio files (i.e. a hard drive that contains compressed audio files, a CPU, a RAM; fig. 1 elements 102, 104 and 108) ;

a least one function key configured to enable a user to select at least one of said audio files (i.e. a user interface that includes one or more buttons or other user input devices; col. 4 lines 14 – 15; and playing back audio due to a user input (col. 7 lines 60 – 65)

an audio controller (i.e. a disk controller; fig. 1 element 106)

an operating system comprising file management software, said file management software configured to manage said audio files and to permit said user to access said audio files via said at least one function key (i.e. control programs stored in the ROM; col. 5 lines 11 – 14; that include a play procedure; col. 5 lines 20 – 22)

said operating system also configured to control said audio controller and said CPU to cause said CPU to decompress said at least one audio file selected by said user (i.e. a decompression procedure; col. 5 lines 22 – 23; the play procedure includes further information on copying data from the disk via the disk controller; col. 6 lines 12 – 16).

Birrell does not explicitly disclose a mini-operating system running instead of a first operating system controlling said computer system that only operates to play said audio files, wherein said mini operating system comprising file management software.

Applying Jacobs to Birrell discloses:

a mini operating system (i.e. Jacob's second OS) running instead of a first operating system (i.e. Birrell's control programs) controlling said computer system that only operates to play said audio files(i.e. a second operating mode, an audio CD mode switch that can activate a non-volatile memory region which stores system BIOS code for loading an operating system and a CD-ROM drive application associated with the operating system for audio playback (col. 1 lines 64 – 67 and col. 2 lines 1 – 5). The second operating system in Jacobs is considered a mini OS as it only loads the software necessary to operate the CD drive, thus it contains less objects and software than the main OS making it smaller and thus mini.

Wherein said mini-operating system comprising file management software, configured to manage said audio files and to permit said user to access said audio files via at least one function key (i.e. using the keyboard to control the CD playback; col. 5 lines 17 – 37)

and said mini operating system being adapted to cause said system CPU to decompress said compressed audio data(i.e. processing unit 102 to decompress a portion of the audio data stored in RAM (col. 4 lines 30 – 33; applying this with the Jacob's reference causes the mini Os to do this)

It would have been obvious to one of ordinary skill in the art to modify Jacobs in order to play compressed music in the manner disclosed by Birrell in place of the CD drive. Birrell discloses that one of ordinary skill in the art will recognize that any suitable non-volatile storage medium (CD) could be used in place of the hard disk used in the preferred embodiment (col. 4 lines 45 – 48).

It would have been obvious to substitute the hard disk playback of compressed music for the audio CD playback as well. One would have been motivated to do so to avoid the lengthy duration of the booting process for an operating system (Jacobs col. 1 lines 34 – 36).

Regarding **Claims 59 and 61**, in addition to the elements stated above regarding claims 58 and 60 Birrell further discloses:

an LCD display configured to display a file/directory name for said audio files (i.e. a user interface; fig. 1 element 116; that includes an LCD display; fig. 1 element 118; and the table of contents 152 can be viewed on the display 118; col. 4 lines 66 – 67).

Claims 20 – 28, 34 – 37, and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Birrell (U.S. Patent 6,332,175).

Regarding **Claim 20**, Birrell discloses:

A computer system adapted to play audio files, said computer system comprising:

a system CPU; memory; and at least one drive comprising compressed audio data (i.e. a CPU, a RAM, a disk with compressed audio files (fig. 1 elements 102, 108 and 104

an audio controller coupled to said system CPU, memory and drive (i.e. a ROM that stores control programs);

said audio controller being adapted to cause said drive to read said compressed audio data, to cause said system CPU to decompress said compressed audio data, thereby providing decompressed audio data (i.e. the control programs include a decompression procedure (col. 5 lines 22 – 23), play procedure (col. 5 lines 20 – 21), said play procedure determines when to copy data from the disk (col. 6 lines 14 – 16)

Birrell does not disclose storing the decompressed data in said memory.

However, Examiner takes official notice that it would have been obvious to one of ordinary skill in the art at the time of the invention to store the decompressed data prior to the A/D conversion. One would have been motivated to do so to buffer the data in order to provide a smooth playback and avoid unnecessary gaps within playback.

Regarding **Claim 21**, in addition to the elements stated regarding claim 20, Birrell further discloses:

wherein said audio controller is further adapted to place said CPU in standby state when said system CPU is not decompressing said compressed audio data (i.e. the control programs include a power down procedure (col. 5 lines 24 – 25) and in a preferred embodiment, one predefined power down condition is data is not being played (col. 7 lines 22 – 24)

Regarding **Claims 22**, in addition to the elements stated regarding claim 20, Birrell further discloses:

wherein said audio controller is further adapted to cause said decompressed audio data to be retrieved for playing (i.e. the control programs include a play procedure (col. 5 lines 20 – 21) and once the audio data has been decompressed it is played back (col. 4 lines 30 – 37)

Regarding **Claim 23**, in addition to the elements stated regarding claim 20, Birrell further discloses:

wherein said drive is a hard disk, removable disk, floppy disk, magnetic storage medium, optical storage medium, or IDE device (i.e. a main non-volatile storage unit, preferably a hard disk (col. 4 lines 6 – 7)

Regarding **Claims 24**, in addition to the elements stated regarding claim 20, Birrell further discloses:

wherein said compressed audio data is in MP3, WMA, AAC, or other secured compressed audio format (i.e. a compression format such as MP3 (col. 1 line 57 – 58)

Regarding **Claim 25**, in addition to the elements stated above regarding claim 20, Birrell further discloses:

further comprising at least one digital computer bus, wherein said audio controller is coupled to at least one of said system CPU, memory, and drive via said digital computer bus (i.e. a bus for interconnecting the aforementioned elements of the system (col. 4 lines 28 – 29) and said bus transfers digital data (col. 4 lines 30 – 35)

Regarding **Claim 26**, in addition to the elements stated above regarding claim 20, Birrell discloses:

further comprising a mini-OS (i.e. a small portable audio player (abstract) that includes a ROM with control programs)

Regarding **Claims 27**, in addition to the elements stated regarding claims 20 and 38, Birrell further discloses:

further comprising an LCD interface for generating signals to an LCD display for displaying song name, file/directory name and/or timing data (i.e. a user interface (fig. 1

element 116) that includes an LCD display (fig. 1 element 118) and the table of contents 152 can be viewed on the display 118, and the user can select CDs and/or individual tracks to be played (col. 4 lines 66 – 67 and col. 5 line 1)

Regarding **Claims 28**, in addition to the elements stated regarding claim 20, Birrell discloses:

further comprising a plurality of function keys and a function key interface operable with said plurality of function keys, said function keys generating user commands to said audio controller through said function key interface (i.e. a user interface that includes one or more buttons or other user input devices (col. 4 lines 14 – 15) and playing back audio due to a user input (col. 7 lines 60 – 65)

Regarding **Claims 34**, in addition to the elements stated above regarding claim 20, Birrell further discloses:

wherein said compressed audio data is stored in one or more audio files on said drive (i.e. a Hard disk that stores compressed audio files (fig. 1 element 104); said computer system further comprising a play list software program for creating and storing a play list comprising one or more said audio files (i.e. storing a table of contents and play state information in RAM (col. 5 lines 39 – 50)

Regarding **Claims 35**, in addition to the elements stated above regarding claim 34, Birrell does not disclose the play list software program is executable only when said

computer is on. However, it is obvious that this would be the case. If the system were not on, there would be no power available and the interrupts would not be sent thus reading upon the limitation wherein said play list software program is executable only when said computer is on or in power state S0.

Regarding **Claims 36**, in addition to the elements stated above regarding claim 35, Birrell further discloses:

wherein said audio controller is further adapted to cause said drive to read said compressed audio data based, at least in part, on said stored play list (i.e. additional data is copied from non-volatile storage medium into volatile storage medium (col. 3 lines 51 – 52) and said play procedure determines when to copy data from the disk (col. 6 lines 14 – 16)

Regarding **Claim 37**, Birrell discloses:

A computer system adapted to play audio files, said computer system comprising:

a system CPU; memory; and at least one drive comprising compressed audio data, said compressed audio data residing in one or more audio files (i.e. a CPU, a RAM, a disk with compressed audio files (fig. 1 elements 102, 108 and 104)

a play list software program for selecting a play list comprising one or more of said audio files (i.e. storing a table of contents and play state information in RAM (col. 5 lines 39 – 50)

an audio controller coupled to said system CPU, memory and drive (i.e. a ROM that stores control programs)

said audio controller being adapted to cause said drive to read said compressed audio data, to cause said system CPU to decompress said compressed audio data, thereby providing decompressed audio data (i.e. the control programs include a decompression procedure (col. 5 lines 22 – 23), play procedure (col. 5 lines 20 – 21), said play procedure determines when to copy data from the disk (col. 6 lines 14 – 16)

Birrell does not disclose storing the decompressed data in said memory.

However, Examiner takes official notice that it would have been obvious to one of ordinary skill in the art at the time of the invention to store the decompressed data prior to the A/D conversion. One would have been motivated to do so to buffer the data in order to provide a smooth playback and avoid unnecessary gaps within playback.

Regarding **Claim 57**, Birrell discloses:

A computer system adapted to play audio files, said computer system comprising:

. a system CPU; memory; and at least one drive comprising compressed audio data, said compressed audio data residing in one or more audio files (i.e. a CPU, a RAM, a disk with compressed audio files (fig. 1 elements 102, 108 and 104)

a play list software program for selecting and storing a play list comprising one or more of said audio files (i.e. storing a table of contents and play state information in RAM (col. 5 lines 39 – 50)

an audio controller coupled to said system CPU, memory and drive (i.e. a ROM that stores control programs)

said audio controller being adapted to retrieve said play list and cause said drive to read said compressed audio data, to cause said system CPU to decompress said compressed audio data, thereby providing decompressed audio data (i.e. the control programs include a decompression procedure (col. 5 lines 22 – 23), play procedure (col. 5 lines 20 – 21), said play procedure determines when to copy data from the disk (col. 6 lines 14 – 16)

Birrell does not disclose storing the decompressed data in said memory. However, Examiner takes official notice that it would have been obvious to one of ordinary skill in the art at the time of the invention to store the decompressed data prior to the A/D conversion. One would have been motivated to do so to buffer the data in order to provide a smooth playback and avoid unnecessary gaps within playback.

Claims 29, 30 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Birrell (U.S. Patent 6,322,175) in view of Alexander (U.S. Patent 6,380,968).

Regarding **Claims 29**, in addition to the elements stated above regarding claim 28, Birrell does not explicitly disclose a software driver for receiving interrupts generated by at least one of said plurality of function keys and for passing said interrupts to said system CPU.

Alexander discloses:

.further comprising a software driver for receiving interrupts generated by at least one of said plurality of function keys and for passing said interrupts to said system CPU (i.e. a cursor detect circuit that receives an interrupt from a user input device, determines the nature of the interrupt and instructs the microcontroller of it (col. 7 lines 11 - 14)

One of ordinary skill in the art at the time of the invention would have been motivated to use Alexander's interrupts to alert Birrell's CPU of user inputs. Birrell does not explicitly disclose how the device processes user inputs and using interrupts as Alexander discloses would have been obvious to one of ordinary skill in the art at the time of the invention.

Regarding **Claims 30**, in addition to the elements stated above regarding claim 29, Birrell discloses:

standard audio player software (i.e. control programs for the system (col. 4 lines 11 – 12)

Birrell does not disclose the CPU utilizing interrupts to control standard audio player software.

Alexander discloses:

wherein said CPU utilizes said interrupts to control said standard audio player software (i.e. a cursor detect circuit that receives an interrupt from a user input device, determines the nature of the interrupt and instructs the microcontroller of it (col. 7 lines 11 - 14)

Motivation to combine these elements is given above regarding claim 29.

Regarding **Claims 33**, in addition to the elements stated above regarding claim 29, Birrell does not explicitly disclose a software driver for receiving interrupts generated by at least one of said plurality of function keys and for passing said interrupts to said system CPU.

Alexander discloses:

further comprising a software driver for receiving interrupts generated by at least one of said plurality of function keys and for passing said interrupts to said system CPU (i.e. a cursor detect circuit that receives an interrupt from a user input device, determines the nature of the interrupt and instructs the microcontroller of it (col. 7 lines 11 – 14)

Motivation to combine these elements is given above regarding claim 29.

Moreover, neither Birrell nor Alexander discloses the software driver not doing these operations unless the computer system is on. However, it is obvious that this

would be the case. If the system were not on, there would be no power available and the interrupts would not be sent thus reading on the limitation wherein the software driver is adapted to not do these operations unless the computer system is on, in sleep mode, in suspend to RAM mode, or in one of the power states S0 or S3.

Claims 45, 46 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Birrell (U.S. Patent 6,322,175) in view of Jacobs (U.S. Patent 6,006,285) in further view of Alexander (U.S. Patent 6,380,968).

Regarding **Claims 45**, in addition to the elements stated above regarding claim 38, Birrell does not explicitly disclose a software driver for receiving interrupts generated by at least one of said plurality of function keys and for passing said interrupts to said system CPU.

Alexander discloses:

.further comprising a software driver for receiving interrupts generated by at least one of said plurality of function keys and for passing said interrupts to said system CPU (i.e. a cursor detect circuit that receives an interrupt from a user input device, determines the nature of the interrupt and instructs the microcontroller of it (col. 7 lines 11 - 14)

One of ordinary skill in the art at the time of the invention would have been motivated to use Alexander's interrupts to alert Birrell's CPU of user inputs. Birrell does not explicitly disclose how the device processes user inputs and using interrupts as Alexander discloses would have been obvious to one of ordinary skill in the art at the time of the invention.

Regarding **Claims 46**, in addition to the elements stated above regarding claim 38, Birrell discloses:

standard audio player software (i.e. control programs for the system (col. 4 lines 11 – 12)

Birrell does not disclose the CPU utilizing interrupts to control standard audio player software.

Alexander discloses:

wherein said CPU utilizes said interrupts to control said standard audio player software (i.e. a cursor detect circuit that receives an interrupt from a user input device, determines the nature of the interrupt and instructs the microcontroller of it (col. 7 lines 11 - 14)

Motivation to combine these elements is given above regarding claim 29.

Regarding **Claims 49**, in addition to the elements stated above regarding claim 38, Birrell does not explicitly disclose a software driver for receiving interrupts generated

by at least one of said plurality of function keys and for passing said interrupts to said system CPU.

Alexander discloses:

further comprising a software driver for receiving interrupts generated by at least one of said plurality of function keys and for passing said interrupts to said system CPU (i.e. a cursor detect circuit that receives an interrupt from a user input device, determines the nature of the interrupt and instructs the microcontroller of it (col. 7 lines 11 – 14)

Motivation to combine these elements is given above regarding claim 29.

Moreover, neither Birrell nor Alexander discloses the software driver not doing these operations unless the computer system is on. However, it is obvious that this would be the case. If the system were not on, there would be no power available and the interrupts would not be sent thus reading on the limitation wherein the software driver is adapted to not do these operations unless the computer system is on, in sleep mode, in suspend to RAM mode, or in one of the power states S0 or S3.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew C. Flanders whose telephone number is (571) 272-7516. The examiner can normally be reached on M-F 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on (571) 272-7546. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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